

REMARKS

Claims 1-18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, and 115 are presented for examination, of which Claims 1, 9, 17, 18, 20, 82, 84, 114, and 115 are in independent form. Claim 94 has been amended to correct an inadvertent omission in the claim language introduced in the Amendment filed on March 22, 2004. Favorable reconsideration is requested.

Claims 1, 9, and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,204,706 (*Saito*) in view of U.S. Patent No. 5,758,181 (*Becker*); Claims 2-5 and 10-13 were rejected under Section 103(a) as being unpatentable over *Saito* in view of *Becker* and further in view of U.S. Patent No. 4,319,286 (*Hanpachern*); Claims 6-8 and 14-16 were rejected under Section 103(a) as being unpatentable over the combination of *Saito* in view of *Becker* further in view of *Hanpachern* and further in view of U.S. Patent No. 5,537,530 (*Edgar et al.*); Claims 18, 50, 82, and 114 were rejected under Section 103(a) as being unpatentable over *Saito* in view of *Edgar et al.*; Claims 22, 26, 54, 58, 86, and 90 were rejected under Section 103(a) as being unpatentable over *Saito* in view of *Edgar et al.* and further in view of *Hanpachern*; Claims 30, 34, 38, 42, 46, 62, 66, 70, 74, 78, 94, 98, 102, 106, and 110 were rejected under Section 103(a) as being unpatentable over *Saito* in view of *Edgar et al.* in further view of *Hanpachern* and in further view of *Becker*; Claims 20, 52, 84, and 115 were rejected under Section 103(a) as being unpatentable over *Saito* in view of *Edgar et al.*; Claims 24, 28, 56, 60, 88, and 92 were rejected under Section 103(a) as being unpatentable over *Saito* in view of *Edgar et al.* and further in view of *Hanpachern*; and

Claims 32, 36, 40, 44, 48, 64, 68, 72, 76, 80, 96, 100, 104, 108, and 112 were rejected under Section 103(a) as being unpatentable over *Saito* in view of *Edgar et al.* in further view of *Hanpachern* and further in view of *Becker*.

Reconsideration is respectfully requested in view of the following comments.

Saito relates to a moving picture managing device. The *Saito* device automatically segments video data into scene data and stores the scene data in a hierarchical structure. Each scene has a picture that is able to represent the scene itself. The *Saito* device also enables the editing of the scenes or cuts.

Hanpachern relates to a device that can be connected to a video tape recorder which responds to the television signals being recorded so as to interrupt the recording process for the duration of each commercial so as to enable a television program to be recorded commercial free. The *Hanpachern* device is able to detect a missing frame of the video information based on a condition of a sync signal and interrupt recording of the video information for a duration that is equivalent to the customary length of a commercial.

Edgar et al. relates to video editing, and in particular to systems and methods for identifying scene change boundaries in video segments and ordering sequences of video segments in relation thereto. The *Edgar et al.* system can automatically detect video segments based on a degree of similarity from among frames and determine which individual frame best represents each scene based on the smallest difference of change between a selected image and every other image in a specific scene. In the *Edgar et al.* system, video is edited by selecting a representative image.

Becker relates to a method and system for presenting segmented data. The *Becker* system can provide an accelerated presentation of segmented data to a user. A data set, including a plurality of data segments each delimited by a pair of segment boundaries, is provided. Adjacent to each of the segment boundaries is a boundary group. A presentation speed of data, not within the boundary group, is accelerated gradually to a maximum speed, while a presentation speed of data within the boundary group is set at a lower rate than the accelerated speed.

The aspect of the present invention set forth in Claim 1 is an image processing system. The system includes calculating means, designating means, determining means, and dynamic image means. The calculating means calculate a degree of similarity from among a plurality of image frames of dynamic image data. The designating means designate a length of a digest dynamic image. The determining means determine scene-change frames based on the degree of similarity calculated by the calculating means, and the dynamic image means performs automatic editing and preparation of the digest dynamic image of the dynamic image data of the designated length by merging frames for a specified duration of each scene delimited by a scene change.

Among other important features of Claim 1 are designating a length of a digest dynamic image and performing automatic editing and preparation of the digest dynamic image of the dynamic image data of the designated length by merging frames for a specified duration of each scene delimited by a scene change.

As discussed above, the *Saito* device automatically segments video data into scene data and stores the scene data in a hierarchical structure. However, nothing has been

found in *Saito* that would teach or suggest designating a length of a digest dynamic image and performing automatic editing and preparation of the digest dynamic image of the dynamic image data of the designated length by merging frames for a specified duration of each scene delimited by a scene change, as recited in Claim 1. Further, the Office Action correctly states at page 4 that *Saito* does not disclose the designation means for designating a length of a digest dynamic image, as recited in Claim 1.

For at least this reason, Applicant submits that Claim 1 is clearly patentable over *Saito*, taken alone.

In the Office Action, however, it is asserted that *Becker* remedies the deficiency of *Saito*. In the *Becker* system, the user is allowed to designate the number of video frames to be included within each of boundary groups (col.6, lines 52 to 54). The Office Action appears to conclude that the user is thus allowed to designate the length of the summary, because it would be obvious to a person of ordinary skill in the art that designating the number of frames to be shown is equivalent to designating a length of time to be shown, since a constant number of frames are shown for any given time.

Applicant respectfully disagrees. Applicant submits that it is substantially impossible for the user to designate a desired length of the summary by designating the number of frames to be included within each of boundary groups. In order to obtain a summary of desired length by designating only the number of frames within the boundary groups, it is necessary, and of course impossible, for the user to know beforehand the total number of the video frames and the total number of segment boundaries.

Although designating the number of frames within the boundary groups results in a summary of a certain length, the user, however, does not know the length of the

summary beforehand and thus the designated number of frames will not correspond with the desired length for the user.

In contrast, according to the present invention as defined by Claim 1, the user is not required to know or determine any information, such as the total length or total frame number, other than the length of a summary (digest) to be made. Thus, in order to obtain a summary of a certain length the user only determines the length of the summary (digest).

Accordingly, Applicant submits that nothing has been found in *Becker* that would remedy the deficiencies *Saito* of designating a length of a digest dynamic image and performing automatic editing and preparation of the digest dynamic image of the dynamic image data of the designated length by merging frames for a specified duration of each scene delimited by a scene change, as recited in Claim 1.

Accordingly, Applicant submits that Claim 1 is clearly patentable over *Saito* and *Becker*, whether considered separately or in any permissible combination.

Further, neither *Hanpachern* nor *Edgar et al.* is seen to remedy the deficiencies of *Saito* and *Becker*.

Independent Claims 9 and 17 are method and recording medium claims respectively corresponding to apparatus Claim 1, and are believed to be patentable for at least the same reasons as discussed above in connection with Claim 1.

The aspect of the present invention set forth in Claim 18 is an image processing system. The system includes calculating means, determining means, and dynamic image means. The calculating means calculates a degree of similarity from among a plurality of image frames of dynamic image data. The determining means

determine scene-change frames based on the degree of similarity calculated by the calculating means. The dynamic image means performs automatic editing and preparation of a digest dynamic image of the dynamic image data by merging a specified duration of frames having a low degree of similarity with an immediately preceding frame or some preceding frames on receipt of instructions to prepare a dynamic digest. That is, it is possible to instruct a kind of a digest to be made (in this case a dynamic digest) and generate the digest according to an instruction that is directed to the preparation of a dynamic digest. Further, a merging process is executed between the frames whose degree of similarity is low.

Among other important features of Claim 18 is performing automatic editing and preparation of a digest dynamic image of the dynamic image data by merging a specified duration of frames having a low degree of similarity with an immediately preceding frame or some preceding frames on receipt of instructions to prepare a dynamic digest.

The Office Action correctly states at page 11 that *Saito* does not disclose merging frames into a digest based on a low degree of similarity between the frame and some preceding frames. For at least this reason, Applicant submits that Claim 18 is clearly patentable over *Saito*, taken alone.

In the Office Action, however, it is asserted that *Edgar et al.* remedies the deficiency of *Saito*. *Edgar et al.* allegedly discloses calculating the “change” between a selected image and every other image in a specific cut, and cites column 12, lines 5-15, in support thereof. It is further asserted that *Edgar et al.* discloses calculating degrees of

similarity among frames and using the data calculated to prepare a digest of one frame per scene.

Applicant understands *Edgar et al.* as discussing determining the frames that best represent scenes based on the smallest difference of change between a selected image and every other image in a specific cut. Accordingly, if the scene is dynamic or quiet (still), the frames best representing the scenes are determined for each scene and the generated digest includes both the digests of dynamic scenes and quiet (still) scenes.

Applicant has found nothing in *Edgar et al.* that would teach or suggest preparation of a digest from only dynamic scenes without quiet (still) scenes. Accordingly, nothing has been found in *Edgar et al.* that would teach or suggest performing automatic editing and preparation of a digest dynamic image of the dynamic image data by merging a specified duration of frames having a low degree of similarity with an immediately preceding frame or some preceding frames on receipt of instructions to prepare a dynamic digest, as recited in Claim 18.

Accordingly, Applicant submits that Claim 18 is clearly patentable over *Saito* and *Edgar et al.*, whether considered separately or in any proper combination.

Further, neither *Hanpachern* nor *Becker* is seen to remedy the deficiencies of *Saito* and *Edgar et al.*

Independent Claims 82 and 114 are method and recording medium claims respectively corresponding to apparatus Claim 18, and are believed to be patentable for at least the same reasons as discussed above in connection with Claim 18.

The aspect of the present invention set forth in Claim 20 is an image processing system. The system includes calculating means, determining means, and

dynamic image means. The calculating means calculate a degree of similarity from among a plurality of image frames of dynamic image data. The determining means determine scene-change frames based on the degree of similarity calculated by the calculating means. The dynamic image means perform automatic editing and preparation of a digest dynamic image of the dynamic image data by merging a specified duration of frames having a high degree of similarity with an immediately preceding frame or some preceding frames on receipt of instructions to prepare a quiet digest.

Among other important features of Claim 20 is performing automatic editing and preparation of a digest dynamic image of the dynamic image data by merging a specified duration of frames having a high degree of similarity with an immediately preceding frame or some preceding frames on receipt of instructions to prepare a quiet digest. That is, it is possible to instruct a kind of a digest to be made (in this case a quiet digest) and selecting frames based on the degree of similarity according to the instruction.

The Office Action correctly states at page 18 that *Saito* does not disclose merging frames into a digest based on a high degree of similarity between the frame and some preceding frames. For at least this reason, Applicant submits that Claim 20 is clearly patentable over *Saito*, taken alone.

In the Office Action, however, it is asserted that *Edgar et al.* remedies the deficiency of *Saito*. It is asserted that *Edgar et al.* discloses calculating the “change” between a selected image and every other image in a specific cut, and cites column 12, lines 5-15, in support thereof. It is further asserted that *Edgar et al.* discloses calculating degrees of similarity among frames and using the data calculated to prepare a digest of one frame.

As discussed above, *Edgar et al.* discusses determining the frames that best represent scenes based on the smallest difference of change between a selected image and every other image in a specific cut. Accordingly, if the scene is dynamic or quiet (still), the frames best representing the scenes are determined for each scene and the generated digest includes both the digests of dynamic scenes and quiet (still) scenes. Applicant has found nothing in *Edgar et al.* that would teach or suggest preparation of a digest from only quiet (still) scenes without dynamic scenes. Accordingly, nothing has been found in *Edgar et al.* that would teach or suggest performing automatic editing and preparation of a digest dynamic image of the dynamic image data by merging a specified duration of frames having a high degree of similarity with an immediately preceding frame or some preceding frames on receipt of instructions to prepare a quiet digest, as recited in Claim 20.

Accordingly, Applicant submits that Claim 20 is clearly patentable over *Saito* and *Edgar et al.*, whether considered separately or in any proper combination.

Further, neither *Hanpachern* nor *Becker* is seen to remedy the deficiencies of *Saito* and *Edgar et al.*

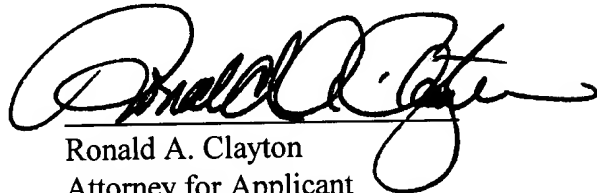
Independent Claims 84 and 115 are method and recording medium claims respectively corresponding to apparatus Claim 20, and are believed to be patentable for at least the same reasons as discussed above in connection with Claim 20.

The other rejected claims in this application depend from one or another of the independent claims discussed above, and, therefore, are submitted to be patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Ronald A. Clayton", written over a horizontal line.

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